

Unit 2: Linear Motion

Acceleration Notes

Acceleration: the change in velocity over time

Symbol: _____

Standard Units: _____

***Note: acceleration is speeding up or slowing down

Formula:

$$a = (v_f - v_i)/t$$

a = acceleration (m/s^2)

v_f = final velocity (m/s)

v_i = initial velocity (m/s)

t = time (s)

Types of Acceleration:

1. Instantaneous: acceleration at that instant in time

2. Positive: velocity of object _____

3. Negative: velocity of object _____

4. Average acceleration: change in _____ divided by the _____ taken to make this change

Practice Problems:

1. You are running around the track at 7.5 m/s, then you decide to increase your speed to 9.5 m/s. If it took you 3.3 seconds to speed up, what is your acceleration?

2. You are running around the track at 4 m/s, then you decide to increase your speed to 7 m/s. If it took you 1.0 seconds to speed up, what is your acceleration?

3. You are driving down the road at 35 m/s , then you decide to slow down to 25 m/s . If it took you 5 seconds to slow down, what is your acceleration?

4. You are driving down the road at 44 m/s , then you decide to slow down to 32 m/s . If it took you 5.5 seconds to slow down, what is your acceleration?